



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/079,270	02/20/2002	Steven Teig	SPLX.P0127	6274

23349 7590 04/24/2003

STATTLER JOHANSEN & ADELI  
P O BOX 51860  
PALO ALTO, CA 94303

EXAMINER

DINH, PAUL

ART UNIT PAPER NUMBER

2825

DATE MAILED: 04/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/079,270

Applicant(s)

TEIG ET AL.

Examiner

Paul Dinh

Art Unit

2825

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 04 September 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Art Unit: 2825

**DETAILED ACTION****Copending/Related application Issue**

This application is objected to because it appears that the applicant does not advise the examiner and/or USPTO the co-pending/related US applications S/Ns 09739460 and 09737220. Under the provisions of MPEP 2001.06(b), the examiner is advised of any co-pending US application(s). Clarification is required.

**Double Patenting**

*The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); In re Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).*

*A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).*

*Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).*

Claims 1-18 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over one or more claims of **copending/related/CIP Applications** No. 09/732181, 09739460 and 09731891

This is a provisional obviousness-type double patenting rejection.

Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the present invention are similar to one or more claims of the copending application. Since one or more claims of the copending applications substantially read on the claims of the present invention or vice versa, therefore, claims 1-18 of the present invention and one or more claims in the copending application are not patentably distinct.

The following table will compare the claims between the copending application and present invention

Present invention claims	Copending application No. 09/732181	Copending application No. 09739460	Copending application 09731891
1, 10	10	38, 42	
2-9, 11-18	2-9, 11-18		

Art Unit: 2825

1, 10	18-19
2-9, 11-18	13
1,10	49,51

### ***Claim Objections***

Claims 2-3, 8, 11-12, 17 are objected to because antecedent basis lacking:

Claims 2, 11, line 1, "the length";

Claims 3, 12, "the necessary wirelength", also, it is not clear how "necessary" is determined.

Claims 8, 17, "the router's potential diagonal wiring".

### ***Claim Rejections - 35 USC § 112***

*The following is a quotation of the first paragraph of 35 U.S.C. 112:*

*The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.*

Claims 8, 17 are rejected under 35 U.S.C. 112, first paragraph because the limitation in these claims finds no clear support in the specification.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

*(b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.*

Claims 1-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Rostoker et al. (USP 5724086). Rostoker discloses a method/program comprising:

(Claims 1, 9-10, 18)

a) for a set of sub-regions ((fig 17-19 and/or fig 73-76 and/or fig 91-95 and/or 99, also see col 42 for i.e., partitioning, components, blocks, smaller blocks, subcircuits, modules), identify a (Steiner Tree) connection graph (fig 71 and/or c59 and/or page 2) that connects the set of sub-regions, where the connection graph has at least on edge that is at least partially diagonal; and

(Fig 5, 8, 73-78, 83 and/or diagonal nets/lines/wires/nets/interconnects/connects/routes/paths from polydirectional or non-orthogonal or three/tri directional routing/interconnections/ connections

Art Unit: 2825

taught in abstract/background/summary, c15, 18-19, etc., and/or Steiner tree algorithms for three directional routing as taught in c59: 53-54)

b) identifying a placement cost from an attribute of the connection graph (c59 and/or c40: 6-13, c43: 22-30, c44: 46++, c45: 21-26).

(Claims 2, 11) c59 and/or c40: 6-13, c43: 22-30, c44: 50+, c45: 21-26 teach length attribute and placement cost equals the length of the connection graph i.e., higher wiring/routing length = higher cost.

(Claims 3, 12) fig 69-72 and/or c15: 30-42 and/or c16: 4-22 and/or c17: 66-67, c18: 1-10 and/or c44: 46+ and/or c55: 3-5, c55: 52-60) teach estimating [the] a (necessary) wirelength for a routing net that has circuit elements in the set of sub regions.

(Claim 4, 13) before identifying the connection graph, identify the set of sub-regions as the set that contains the set of circuit element (fig 8, 10 and/or 17-19 and/or fig 73-76 and/or fig 91-95 and/or fig 98-99 and/or c42-43 and/or c52: 66-67, c53: 1-10) wherein the placement cost is a placement cost for the net (c59 and/or c40: 6-13, c43: 22-30, c44: 50+, c45: 21-26)

(Claims 5, 14) fig 70-72 and/or 101-103 teaches a storage structure.

(Claims 6, 15) for each net in the circuit layout region

(i) identifying a set of regions that contains the set of circuit elements (by Floorplan/partition/subpartitions/ permutation/shape library/selection in fig 98-99, also see col 42 for i.e., partitioning, components, blocks, smaller blocks, subcircuits, modules).

(ii) identifying a connection graph (fig 6-7, 69-72) that connects the set of sub-regions;

(ii) identifying the length of the connection graph (fig 6-7 and/or 69-72 and/or abstract and/or c6: 30+, c14: 66-67 and/or c15: 40-42 and/or c55: 52+);

wherein some connection graphs have at least one edge that is at least partially diagonal (fig 5, 8, 73-78, 83 and/or diagonal nets/lines/wires/nets/interconnects/connects/routes/paths from polydirectional or non-orthogonal or three/tri directional routing/interconnections/ connections taught in abstract/background/summary, c15, 18-19, etc., and/or Steiner tree algorithms for three directional routing as taught in c59: 53-54)

identifying an overall placement cost from the identified length of the connection graph (c43: 22-30, c45: 21-28, c59: 30-42, c59: 30-42)

(Claims 7, 18) c42: 35 and/or c44: 19 and/or c45: 44 and/or c53: 18-19 teaches an initial placement

(Claims 8, 17)

- The limitation in these claims is inherent, i.e. placing does not necessarily account for wiring/routing. Placing and wiring/routing are two different functions; and/or

Art Unit: 2825

- CAD algorithms and/or layout tool used in this reference Rostoker teaches the initial placement is specified by a placer (layout/placement/CAD tool(s)) that does not account for the router's potential diagonal wiring during routing (polydirectional, non-orthogonal, three/tri directional routing/interconnects (sometimes referred to as "hexagonal routing"), insofar the limitation is understood).

*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul Dinh whose telephone number is (703) 305-5662. The examiner can normally be reached on Monday to Friday from 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew S. Smith can be reached on (703) 308-1323. The fax number for the organization handling this application is (703) 872-9318.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

Paul Dinh  
Patent Examiner  
April 17, 2003



MATTHEW SMITH  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800